

PROCEEDINGS OF THE SOCIETY.

MEETING OF DECEMBER 12, 1940.

A regular meeting of the Brooklyn Entomological Society was held at the Brooklyn Museum on Thursday, December 12, 1940, at 8:00 P.M. President William T. Davis presided, and nine other members were present, namely, Messrs. Buchholz, Engelhardt, Gaul, Malkin, McElvare, Naumann, Pallister, Siepmann and Teale; also, Messrs. Frederic V. Clark, I. Earl Ehrenreich, Morris Gelman, Morris Schwartz, Daniel Sherry, and Mrs. Pallister.

The minutes of the previous meeting were read and approved. Mr. Davis appointed a nominating committee to consist of Messrs. Teale, Gaul and Shoemaker.

Mr. Engelhardt presented an informal treasurer's report, indicating a satisfactory financial condition. He also said that sufficient manuscript was on hand for the society's publications.

Mr. John C. Pallister, 2501 Knapp Street, Yacht Marion II, Brooklyn, N. Y., was proposed for membership by Mr. Davis. The by-laws were suspended and Mr. Pallister was duly elected to membership.

The secretary read a letter from Mr. Lionel Lacey who resigned as a member of the society. His resignation was accepted, and Mr. Engelhardt volunteered to inform him of this action, and to express the regrets of the society.

Mr. Engelhardt reported that Dr. George S. Tulloch was now in Brazil doing some mosquito work for the Rockefeller Foundation. A search is being made for the species responsible for the jungle type of yellow fever, the vector being known only for the urban type.

Mr. Pallister showed specimens of Elateridae of the genus *Semiodus*. They are of interest because of their long slender form and bright colors. The American Museum of Natural History has 25 of the 90 known species. They occur chiefly in South America, their distribution centering around Ecuador and Northern Peru. Three species extend into Mexico.

Mr. Davis showed some skunk pellets obtained near Oakwood, Staten Island, containing wild cherry pits, and parts of cicadas, hornets and other insects, indicating that the skunks raid the burrows of the Cicada Killer.

The speaker for the evening was Mr. Albro Tilton Gaul, who spoke on "Some Aspects of the Parasitic Hymenoptera."

Mr. Gaul called attention to the fact that a true parasite does not

kill its host. The Hymenopterous parasites generally kill their host, and are properly called parasitoids.

The parasitic Hymenoptera are not a taxonomic group, but consist of a number of families taxonomically diversified, embracing about half of the Hymenoptera. Thus, in New England, there are about 1400 species of Hymenoptera which are parasitic, compared with about 500 saw flies, 500 solitary wasps and bees, and 100 social species.

In typical Hymenopterous parasitoids, the female deposits her eggs in, on or near the host. The egg develops into a larva which devours the tissue of the host. The fat body is consumed first, the vital parts last. The larva is simply a predatory insect, eating the food nearest at hand, while the adult is a free living insect with a complex of instincts necessary for the selection of a host and the disposition of her eggs. With these reproductive instincts there is often a close association of the hunger instinct. In some Chalcid flies, for instance, the female stings her host and oviposits; then she backs up and licks the juices issuing from the puncture.

The sting in the parasitoids has a threefold purpose; it protects the individual, it paralyzes the prey, and it has an antiseptic effect, preventing the decomposition of the host.

Parasites undergo certain modifications adapting them to the parasitic life. In general, there is a simplification of anatomy and an increased reproductive ability. This is true of tapeworms and other true parasites, as well as of the parasitoids.

In the Hymenopterous parasitoids the simplification is mostly in the larva. The mouth parts and the head capsule are small. The abdominal muscles are weak, the larval abdomen swelling to accommodate food. Legs are vestigial. The tracheae are reduced, particularly in the endoparasitic forms. In young larvae of some species, there is only a network of capillaries, the oxygen being absorbed from the blood of the host. The only noteworthy simplification in the adult parasitoid is in the wing venation.

As is general among insects, the more complex the adult, the more primitive the larva.

The reproductive ability of the parasitoid Hymenoptera is generally increased. In most species parthenogenesis exists, usually supplying males for the next season. In some cases, the male is rare and useless.

Polyembryony, in which a normal egg divides into two or more cells, each of which forms a separate individual, also occurs. The number of individuals from a single egg often depends upon the size

of the host. In *Platygaster*, one, two or four individuals may develop from a single egg. In *Copidosoma* a parasite on the goldenrod moth, the average is 163 individuals from a single egg.

Very few parasites are restricted to a single species or a single genus as a host, but the range of hosts varies. The parasites frequent the food plant of the host, but when an introduced pest appears in a new locality, the food plant is often changed, while introduced parasites may frequent the original or other food plants.

Mr. Gaul briefly described how the present forms of Hymenoptera might have evolved from primitive phytophagous forms.

The Oryssidae, a family of sawflies, are the first group of parasites discussed; they are ectoparasites on Buprestid beetles.

Among the Ichneumonidae were discussed such ectoparasites as *Megarhyssa*, *Polysphincta*, *Paniscus* and *Grotea* and the endoparasitic forms, the Ephialtini, *Amblyteles*, *Ophion*, *Therion* and *Diplazon*.

The Braconids, *Aphidius* and *Microbracon*, the Evanidae, Pelecinidae, Scelionidae, Figitidae, Ibaliinae, Perilampidae and Pteromalidae as well as the Mymaridae were mentioned to illustrate various types of relationships. These represented hypermetamorphosis, hyperparasitism, reinfestation (*Mellittobia*), phoresy, and variations from the parasitic existence to the phytophagous. Life histories of all these forms were treated.

Mr. Davis called attention to Mr. Leng's illness. Mr. Leng is the only surviving incorporator of the Brooklyn Entomological Society in 1885, and was also an incorporator in 1936.

The meeting adjourned at 10:15 P.M.

CARL GEO. SIEPMANN,
Secretary.

I AM AN ENTOMOLOGIST.

I am an Entomologist,
And as good as I can be
And if you have a problem list,
You can always count on me.
I can make all the buggies squirm
From cricket to bumble bee,
And if you have a bad snail or worm,
You can always count on me.

DAN TOLAND, age 11, Alhambra, Calif.